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Record 1

Serial number TDB0396.0065

Field Name	Contents of Record 1
Size of Record	1489 total bytes in record, 1231 in TX field
Title	Fast <b>Laser -Steam</b> Cleaning by Continuous Liquid-Film Deposition and Pulsed <b>Laser</b> Irradiation of a Moving Surface
Publication Date	March, 1996
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Text of Submission	<p>This document contains drawings, formulas, and/or symbols that will not appear on line. Request hardcopy from ITIRC for complete article.</p> <p>Disclosed is an apparatus for high throughput <b>laser steam</b> cleaning of surfaces. A part to be cleaned, (1) in Fig. 1, is moved continuously as a thin liquid film (2) is continuously deposited on its surface using a nozzle, (3). The liquid film is approximately 1 <math>\mu</math>m thick. Pulsed <b>laser</b> radiation (4) is applied downstream to superheat the liquid film, producing cleaning action. A typical embodiment uses a KrF <b>laser</b> pulsed at 5 to 20Hz with a 1mm/sec translation speed for the part. The maximum <b>laser</b> pulse rate of 20Hz is limited by the rate at which the thin liquid film can be replenished. In another embodiment, use of "multiplexed scanning" provides a higher throughput (Fig. 2).</p> <p>A high repetition rate (300Hz) KrF <b>laser</b> is scanned perpendicularly to the direction of the part motion in a sawtooth pattern using a galvanometer mirror. Replenishment of the micron thick liquid film is provided by an elongated nozzle or an array of nozzles (*).</p> <p>Reference (*) P. E. Ross, "Dust Busters: <b>Laser</b> Wipe Submicron Motes From Silicon Wafers," Scientific American 262, 6, 86-88 (1980).</p>
Reference (pointer to work)	IBM TDB v39 n3 03-96 p175-176 Order: 96A 60369
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